

## Claims

1. A transformation apparatus comprising:

a memory unit for storing a program for batch processing in a form of source code;

5 a section judging unit for dividing the source code of the program stored in the memory unit into at least one block of process, each block of process being identified as a section, and judging a role of the section as semantic information of each section; and

an extracting/transforming unit for extracting transformation  
10 information for source code transformation from the source code of the program stored in the memory unit based on the semantic information of each section judged by the section judging unit, and transforming the source code of the program into source code of a transformation result program including the source code of a transformation result program for a client and  
15 the source code of the transformation result program for a server based on the transformation information extracted.

2. The transformation apparatus of claim 1, wherein the extracting/transforming unit transforms the source codes of the two transformation result programs into source codes of an object-oriented  
20 program.

3. The transformation apparatus of claim 2, wherein the extracting/transforming unit creates plural templates of the object-oriented program, which correspond to plural classes having a predetermined data structure and procedure, extracts plural pieces of information including the  
25 predetermined data structure and procedure from the source codes of the two

transformation result programs, and transforms the source codes of the two transformation result programs into the source codes of plural object-oriented programs by applying each of the plural pieces of information extracted to a corresponding part of the plural templates.

5     4.     A transformation apparatus comprising:

          a memory unit for storing a program for batch processing in a form of source code;

          a section judging unit for dividing the source code of the program stored in the memory unit into at least one block of process, each block of process being identified as a section, and judging a role of each section as semantic information of each section, and

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          wherein the transformation apparatus creates plural templates of object-oriented programs, which correspond to plural classes, each of which having a predetermined data structure and procedure, extracts plural pieces information including the predetermined data structure and procedure from the source code of the program for batch processing stored in the memory unit based on the semantic information of each section judged by the section judging unit, and transforms the source code of the program stored in the memory unit by applying each of the plural pieces of information extracted to a corresponding part of the plural templates.

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5.     The transformation apparatus of claim 1 further comprising a program judging unit for judging a role of the source code of the program stored in the memory unit as semantic information of the program, and

          wherein the extracting/transforming unit extracts transformation information for transforming the source code of the program from the source

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code of the program based on the semantic information of the program judged by the program judging unit and the semantic information of each section judged by the section judging unit.

6. The transformation apparatus of claim 1 further comprising a syntax  
5 analyzing unit for analyzing syntax of the program stored in the memory unit, and

wherein the section judging unit judges the semantic information of each section included in the program, the syntax of which is analyzed by the syntax analyzing unit.

- 10 7. The transformation apparatus of claim 1 transforms source code of a COBOL program for batch processing.

8. A transformation method comprising:

storing a program for batch processing in a form of source code;

- 15 dividing the source code of the program stored into at least one block of process, each block of process being identified as a section, and judging a role of each section as semantic information of each section; and

- extracting transformation information for source code transformation from the source code of the program stored based on the semantic information of each section judged, and transforming the source  
20 code of the program into source code of transformation result program including two source codes of a transformation result program for a client and of a transformation result program for a server based on the transformation information extracted.

9. A transformation program having a computer perform processes of:  
25 storing a program for batch processing in a form of source code;

dividing the source code of the program stored into at least one block of process, each block of process being identified as a section, and judging a role of each section as semantic information of each section; and

extracting transformation information for source code

5 transformation from the source code of the program stored based on the semantic information of each section judged, and transforming the source code of the program into source code of transformation result program including two source codes of a transformation result program for a client and of a transformation result program for a server based on the  
10 transformation information extracted.

10. A computer readable recording medium storing a transformation program having a computer perform processes of:

storing a program for batch processing in a form of source code;

dividing the source code of the program stored into at least one block  
15 of process, each block of process being identified as a section, and judging a role of each section as semantic information of each section; and

extracting transformation information for source code

transformation from the source code of the program stored based on the semantic information of each section judged, and transforming the source  
20 code of the program into source code of transformation result program including two source codes of a transformation result program for a client and of a transformation result program for a server based on the transformation information extracted.

11. A transformation apparatus comprising:

25 a first transformation unit for inputting program source code of a

procedural off-line batch processing and transforming the program source code into a program for on-line real-time processing; and

a second transformation unit for further transforming the program for on-line real-time processing into a Web program which works in

5 client/server environment.

12. The transformation apparatus of claim 11, wherein:

the first transformation unit inputs the program source code for the off-line batch processing, naming rules of data, and coding rules of procedures and transforms the program source code into two kinds of class  
10 programs including a client side class and a server side class for the on-line real-time processing; and

the second transformation unit inputs the two kinds of class programs and generates source program of an object-oriented program.

13. The transformation apparatus of claim 12, wherein the second

15 transformation unit transforms the client side class into three kinds of class programs including a model class, a view class, and a controller class and transforms the server side class into two kinds of class programs including a session class and an entity class.

14. The transformation apparatus of claim 12, wherein the first

20 transformation unit includes preprocessing of meaning assignment for referring to definition of data in the source code of the program, judging definition of a master file and definition of a transaction file, detecting a role of the program and roles of components of the program among a series of processes, and appending labels which show the roles of the program and the  
25 roles of the components of the program among a series of processes.

15. The transformation apparatus of claim 12, wherein  
the first transformation unit executes a transformation 1 program,  
the second transformation unit executes a transformation 2 program,  
the programs for the off-line batch processing is classified to plural  
5 categories,

the transformation 1 program and the transformation 2 program are  
generated corresponding to each of the plural categories of the program for  
the off-line batch processing, and

the first transformation unit and the second transformation unit  
10 respectively execute the transformation 1 program and the transformation 2  
program generated corresponding to the each of the plural categories of the  
program for the off-line batch processing.

16. A transformation method comprising:

inputting program source code of a procedural off-line batch  
15 processing;

transforming the program source code into a program for on-line  
real-time processing; and

transforming the program for on-line real-time processing into a Web  
program which works in client/server environment.